


02/16/00  
JCS58 U.S. PTO

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PTO/SB/05 (4/98)  
Approved for use through 09/30/2000. OMB 0651-0032  
Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

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<b>UTILITY PATENT APPLICATION TRANSMITTAL</b> <small>(Only for new nonprovisional applications under 37 C.F.R. § 1.53(b))</small>	Attorney Docket No.
	First Inventor or Application Identifier <u>CORTLAND O. DUGGER</u>
	Title
Express Mail Label No.	

JCS58 U.S. PTO  
09/505215  
02/16/00

<b>APPLICATION ELEMENTS</b> <small>See MPEP chapter 600 concerning utility patent application contents.</small>	<b>ADDRESS TO:</b> Assistant Commissioner for Patents Box Patent Application Washington, DC 20231
1. <input checked="" type="checkbox"/> * Fee Transmittal Form (e.g., PTO/SB/17) (Submit an original and a duplicate for fee processing)	5. <input type="checkbox"/> Microfiche Computer Program (Appendix)
2. <input type="checkbox"/> Specification [Total Pages <u>30</u> ] (preferred arrangement set forth below) <ul style="list-style-type: none"><li>- Descriptive title of the Invention</li><li>- Cross References to Related Applications</li><li>- Statement Regarding Fed sponsored R &amp; D</li><li>- Reference to Microfiche Appendix</li><li>- Background of the Invention</li><li>- Brief Summary of the Invention</li><li>- Brief Description of the Drawings (if filed)</li><li>- Detailed Description</li><li>- Claim(s)</li><li>- Abstract of the Disclosure</li></ul>	6. Nucleotide and/or Amino Acid Sequence Submission (if applicable, all necessary) <ul style="list-style-type: none"><li>a. <input type="checkbox"/> Computer Readable Copy</li><li>b. <input type="checkbox"/> Paper Copy (identical to computer copy)</li><li>c. <input type="checkbox"/> Statement verifying identity of above copies</li></ul>
3. <input type="checkbox"/> Drawing(s) (35 U.S.C. 113) [Total Sheets <u>    </u> ]	<b>ACCOMPANYING APPLICATION PARTS</b>
4. Oath or Declaration [Total Pages <u>30</u> ] <ul style="list-style-type: none"><li>a. <input type="checkbox"/> Newly executed (original or copy)</li><li>b. <input type="checkbox"/> Copy from a prior application (37 C.F.R. § 1.63(d)) (for continuation/divisional with Box 16 completed)<ul style="list-style-type: none"><li>i. <input type="checkbox"/> <b>DELETION OF INVENTOR(S)</b> Signed statement attached deleting inventor(s) named in the prior application, see 37 C.F.R. §§ 1.63(d)(2) and 1.33(b).</li></ul></li></ul>	7. <input type="checkbox"/> Assignment Papers (cover sheet & document(s))
<b>* NOTE FOR ITEMS 1 &amp; 13: IN ORDER TO BE ENTITLED TO PAY SMALL ENTITY FEES, A SMALL ENTITY STATEMENT IS REQUIRED (37 C.F.R. § 1.27), EXCEPT IF ONE FILED IN A PRIOR APPLICATION IS RELIED UPON (37 C.F.R. § 1.28).</b>	8. <input type="checkbox"/> 37 C.F.R. § 3.73(b) Statement <input type="checkbox"/> Power of Attorney (when there is an assignee)
	9. <input type="checkbox"/> English Translation Document (if applicable)
	10. <input type="checkbox"/> Information Disclosure Statement (IDS)/PTO-1449 <input type="checkbox"/> Copies of IDS Citations
	11. <input type="checkbox"/> Preliminary Amendment
	12. <input type="checkbox"/> Return Receipt Postcard (MPEP 503) (Should be specifically itemized)
	13. <input type="checkbox"/> * Small Entity Statement(s) <input type="checkbox"/> Statement filed in prior application, Status still proper and desired (PTO/SB/09-12)
	14. <input type="checkbox"/> Certified Copy of Priority Document(s) (if foreign priority is claimed)
	15. <input type="checkbox"/> Other: _____

16. If a CONTINUING APPLICATION, check appropriate box, and supply the requisite information below and in a preliminary amendment:

☐ Continuation ☒ Divisional ☒ Continuation-in-part (CIP) of prior application No: 08,199,757  
Prior application information: Examiner \_\_\_\_\_ Group / Art Unit: 1754

For CONTINUATION or DIVISIONAL APPS only: The entire disclosure of the prior application, from which an oath or declaration is supplied under Box 4b, is considered a part of the disclosure of the accompanying continuation or divisional application and is hereby incorporated by reference. The incorporation can only be relied upon when a portion has been inadvertently omitted from the submitted application parts.

<b>17. CORRESPONDENCE ADDRESS</b>					
<input type="checkbox"/> Customer Number or Bar Code Label			or <input checked="" type="checkbox"/> Correspondence address below		
(Insert Customer No. or Attach bar code label here)					
Name	<u>CORTLAND O. DUGGER</u>				
Address	<u>12600 Westover Court</u>				
City	<u>Upper Marlboro,</u>	State	<u>MD</u>	Zip Code	<u>20742-5036</u>
Country	<u>USA</u>	Telephone	<u>(301) 427-5268</u>	Fax	<u>(301) 427-3676</u>

Name (Print/Type)	Registration No. (Attorney/Agent)
Signature	Date

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**STATEMENT CLAIMING SMALL ENTITY STATUS  
(37 CFR 1.9(f) & 1.27(b))--INDEPENDENT INVENTOR**

Docket Number (Optional)

Applicant, Patentee, or Identifier: CORTLAND O. DUGGER

Application or Patent No.: 08/990,757

Filed or Issued: December 15, 1997

Title: Production of Cationically-Homogeneous Nanostructured  
Refractory Oxides At Reduced Temperatures

As a below named inventor, I hereby state that I qualify as an independent inventor as defined in 37 CFR 1.9(c) for purposes of paying reduced fees to the Patent and Trademark Office described in:

- ☐ the specification filed herewith with title as listed above.  
☒ the application identified above.  
☐ the patent identified above.

I have not assigned, granted, conveyed, or licensed, and am under no obligation under contract or law to assign, grant, convey, or license, any rights in the invention to any person who would not qualify as an independent inventor under 37 CFR 1.9(c) if that person had made the invention, or to any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e).

Each person, concern, or organization to which I have assigned, granted, conveyed, or licensed or am under an obligation under contract or law to assign, grant, convey, or license any rights in the invention is listed below:

- ☒ No such person, concern, or organization exists.  
☐ Each such person, concern, or organization is listed below.

Separate statements are required from each named person, concern, or organization having rights to the invention stating their status as small entities. (37 CFR 1.27)

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

CORTLAND O. DUGGER  
NAME OF INVENTOR

NAME OF INVENTOR

NAME OF INVENTOR

Cortland O. Dugger  
Signature of inventor

Signature of inventor

Signature of inventor

Feb. 16, 2000  
Date

Date

Date

A

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Cortland O. Dugger

Serial No. 08/990,757

Examiner: Steven Bos

Group Art Unit 1754

Filed: December 15, 1997

For: PRODUCTION OF CATIONICALLY-HOMOGENEOUS  
NANOSTRUCTURED REFRACTORY OXIDES AT REDUCED TEMPERATURES

DIVISIONAL APPLICATION

Honorable Commissioner of  
Patent and Trademark Office  
Washington, D.C. 20231

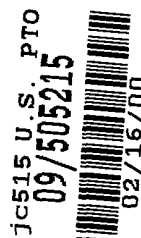
Sir:

This Divisional Application is a continuation-in-part (CIP) of U.S. Application Ser. No. 08/990/757, filed December 15, 1997; which in turn is a CIP of U.S. Application Ser. No. 08/294,813, filed August 25, 1994; which in turn is a CIP of PCT Application PCT/US93/01846, filed March 1, 1993; which in turn is a CIP of U.S. Application Ser. No. 07/843,218, filed February 28, 1992; now abandoned. The applicant is claiming the benefits of all the above filing dates.

A small entity utility filing fee check of \$380 and a Declaration For Utility Patent Application (37 CFR 1.63) are enclosed.

IN THE CLAIMS:

1. A process for producing a refractory oxide which comprises (a) reacting at least one metal oxide reactant and an aqueous hydrogen fluoride solution to produce either a slurry-blended dispersion which produces a fully-hydrated, cationically-homogeneous and nanostructured colloidal mixture or a solution; (b) removing the liquid from either the colloidal mixture or solution to form a dried product; (c) heating the dried product to produce a solid state metal hydroxyfluoride; (d) further heating the thus-produced metal hy-



droxyfluoride to a higher temperature at which it chemically decomposes, by heat alone, into a cationically-homogeneous nanostructured solid state metal oxyfluoride; and performing one of the following heating steps: (i) heating the thus-produced metal oxyfluoride to a solid state decomposition-temperature at which it chemically decomposes, by heat alone, into a cationically-homogeneous nanostructured solid state refractory oxide; or, (ii) heating the thus-produced metal oxyfluoride to a molten state decomposition-temperature at which it chemically decomposes, by heat alone, into a cationically-homogeneous nanostructured solid state refractory oxide; or, (iii) heating the thus-produced metal oxyfluoride to a vapor state decomposition-temperature at which it chemically decomposes, by heat alone, into a cationically-homogeneous nanostructured solid state refractory oxide.

2. The process of claims 1, wherein the reactants for step (a) comprise at least one metal oxide and an aqueous hydrogen fluoride solution.

Respectfully submitted,

*Cortland O. Dugger*

Cortland O. Dugger  
12600 Westover Ct.  
Upper Marlboro, MD 20772  
(301) 627-5268

Encl:

Filed: February 16, 2000

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Cortland O. Dugger

Examiner: Steven Bos

Serial No. 08/990,757

Group Art Unit 1754

Filed: December 15, 1997

For: PRODUCTION OF CATIONICALLY-HOMOGENEOUS  
NANOSTRUCTURED REFRACTORY OXIDES AT REDUCED TEMPERATURES

Honorable Commissioner of  
Patent and Trademark Office  
Washington, D.C. 20231

Sir:

Under the Declaration For Utility Patent Application, the dates of the amendments filed to the above Serial No. 08/990,757 Application are:

Filed Under 37 C.F.R. 1.115

May 14, 1998; May 29, 1998; June 5, 1998; August 10, 1998;  
October 8, 1998; November 3, 1998; April 2, 1999; April 5,  
1999; April 6, 1999.

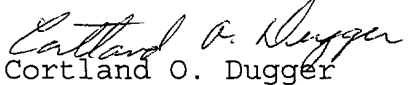
Filed Under 35 U.S.C. 121

December 29, 1998.


Filed Under 37 C.F.R. 1.116

September 28, 1999.

Respectfully submitted,

  
Cortland O. Dugger  
12600 Westover Ct.  
Upper Marlboro, MD 20772  
(301) 627-5268

Filed: February 16, 2000

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<b>DECLARATION FOR UTILITY OR DESIGN PATENT APPLICATION</b> (37 CFR 1.63)	<b>Attorney Docket Number</b>		
	<b>First Named Inventor</b>	CORTLAND O. DOFFER	
	<b>COMPLETE IF KNOWN</b>		
	<b>Application Number</b>	08 1990,757	
	<b>Filing Date</b>	December 15, 1997	
	<b>Group Art Unit</b>	1754	
<input type="checkbox"/> Declaration Submitted with Initial Filing	OR	<input checked="" type="checkbox"/> Declaration Submitted after Initial Filing (surcharge (37 CFR 1.16 (e)) required)	
		<b>Examiner Name</b>	Steven Bos

As a below named inventor, I hereby declare that:

My residence, post office address, and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

Production Of Cationically - Homogeneous Nanostructural Refractory Oxides At Reduced Temperatures

the specification of which (Title of the Invention)

☐ is attached hereto  
OR

☒ was filed on (MM/DD/YYYY) December 15, 1997 as United States Application Number or PCT International

Application Number 08 1990,757 and was amended on (MM/DD/YYYY) See attached (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment specifically referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56.

I hereby claim foreign priority benefits under 35 U.S.C. 119(a)-(d) or 365(b) of any foreign application(s) for patent or inventor's certificate, or 365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or of any PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application Number(s)	Country	Foreign Filing Date (MM/DD/YYYY)	Priority Not Claimed	Certified Copy Attached?	
				YES	NO
2,131,326	Canada	March 1, 1993	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>


☐ Additional foreign application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto:

I hereby claim the benefit under 35 U.S.C. 119(e) of any United States provisional application(s) listed below.

Application Number(s)	Filing Date (MM/DD/YYYY)	<input type="checkbox"/> Additional provisional application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto.

[Page 1 of 2]

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## DECLARATION — Utility or Design Patent Application

I hereby claim the benefit under 35 U.S.C. 120 of any United States application(s), or 365(c) of any PCT international application designating the United States of America, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT international application in the manner provided by the first paragraph of 35 U.S.C. 112, I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

U.S. Parent Application or PCT Parent Number	Parent Filing Date (MM/DD/YYYY)	Parent Patent Number (if applicable)
Serial No. 08/990,757	Dec. 15, 1997	

☐ Additional U.S. or PCT international application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto.

As a named inventor, I hereby appoint the following registered practitioner(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

☐ Customer Number  OR  
☐ Registered practitioner(s) name/registration number listed below

Place Customer  
Number Bar Code  
Label here

Name	Registration Number	Name	Registration Number

☐ Additional registered practitioner(s) named on supplemental Registered Practitioner Information sheet PTO/SB/02C attached hereto.

Direct all correspondence to: ☐ Customer Number  OR ☒ Correspondence address below

Name	CORTLAND O. DUGGER				
Address	12600 Westover Court				
Address					
City	Upper Marlboro	State	MD	ZIP	20772-5036
Country	USA	Telephone	(301) 627-5268	Fax	(301) 627-3676

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Name of Sole or First Inventor:	<input type="checkbox"/> A petition has been filed for this unsigned inventor						
Given Name (first and middle (if any))			Family Name or Surname				
CORTLAND OTIS			DUGGER				
Inventor's Signature	Cortland O. Dugger				Date	2/16/00	
Residence: City	Upper Marlboro	State	MD	Country	USA	Citizenship	USA
Post Office Address							
Post Office Address							
City		State		ZIP		Country	

☐ Additional inventors are being named on the \_\_\_\_\_ supplemental Additional Inventor(s) sheet(s) PTO/SB/02A attached hereto